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EXAMINER	
ALHIJA, SAIF A	

ART UNIT	PAPER NUMBER
2128	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/611,437	VOELLM ET AL.	
	Examiner	Art Unit	
	SAIF A. ALHIJA	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 have been presented for examination.

Response to Arguments

2. Applicant's arguments filed 13 May 2009 have been fully considered but they are not persuasive.

NON-PRIOR ART ARGUMENTS

i) Following Applicants amendments and arguments the 101 rejections are **WITHDRAWN**.

ii) Following Applicants amendments the previously presented 112 2nd rejections are withdrawn however additional 112 2nd rejections have been provided below.

PRIOR ART ARGUMENTS

iii) Applicants argue that the combination of references do not teach dynamic allocation of buffer memory, comparing transactions, storing information server side, and messaging using LWIO protocol. With respect to buffer memory allocation, see Forecast column 15, Lines 13-22 which recites disk buffer memory and further the conditions of its allocation. With respect to comparing transactions this section also recites this feature in that the first, second, and third conditions recited perform this limitation. With respect to server side storing see Column 5 of Ballard lines 35-41. Finally with respect to the LWIO protocol the Examiner notes that this appears to be a generic protocol and was recited as such in the 103 rejection previously and currently provided. Applicant's recitation that the protocol is for a distributed file system represents an intended use and does not obviate the use of LWIO protocols in the rejection. Furthermore the Examiner notes that in view of **KSR, 550 U.S. at ___, 82 USPQ2d at 1391 which reads "The Supreme Court further stated that: When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. Id. at ___, 82 USPQ2d at 1396." (Emphasis added)** The Examiner cannot see how a person of ordinary skill in the art would lack the skill to combine the references nor can the Examiner see how the use a LWIO protocol would be unpredictable. With respect to the resource constrained

situation recited in the claims the Examiner notes the load balancing list of Ballard and the allocation balancing program of Forecast.

The Examiner notes that Applicants argues in their remarks dated 17 December 2007 that Forecast does not recite client side load balancing information for which the Examiner provided Ballard in support. Applicants then argued in their remarks dated 25 August 2008, top of page 12, that client side balancing is different than the claimed invention. Now it appears Applicants are arguing that the claimed invention is in fact not client side. The Examiner respectfully requests clarification on the direction taken with respect to the claims.

EXAMINERS NOTES

iv) The Examiner has cited particular columns and line numbers in the references applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

v) The Examiner respectfully requests, in the event the Applicants choose to amend or add new claims, that such claims and their limitations be directly mapped to the specification, which provides support for the subject matter. This will assist in expediting compact prosecution.

vi) Further, the Examiner respectfully encourages Applicants to direct the specificity of their response with regards to this office action to the broadest reasonable interpretation of the claims as presented. This will avoid issues that would delay prosecution such as limitations not explicitly presented in the claims, intended use statements that carry no patentable weight, mere allegations of patentability, and novelty that is not clearly expressed.

vii) The Examiner also respectfully requests Applicants, in the event they choose to amend, to supply a clean version of the presented claims in addition to the marked-up copy in order to avoid potential inaccuracies with the version of the claims that would be examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

i) Claim 5 recites a "completion factor." It is unclear how to ascertain the scope, metes, and bounds of this term. This renders the claim vague and indefinite.

ii) Claim 6 recites "one credit." It is unclear how to quantify the value attributed to a single credit. By what metric is one credit determined? This renders the claim vague and indefinite.

iii) The Examiner notes that the phrase "equitable distribution" was rejected in the previous office action and amended by Applicants. The Examiner respectfully requests Applicants equally amend all other instances of this phrase, for example claim 17.

Appropriate correction is required.

All claims dependent upon a rejected base claim are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the

obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claim(s) 1-3, and 5-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Forecast et al. "Dynamic Modeling for Resource Allocation in a File Server", U.S. Patent No. 6,230,200,** hereafter referred to as **Forecast,** in view of **Ballard "Client-Side Load-Balancing in Client Server Network", U.S. Patent No. 6,078,960,** hereafter referred to as **Ballard.**

Regarding Claim 1:

The references disclose A computer program product embodied on a computer- readable storage medium and comprising code stored on the computer readable storage medium the code such that, when executed by a processor, causes a computing device to perform the following:

receiving information from a client computing device at a server component on a server computing device, the server computing device configured for dynamic allocation of buffer memory on the server, the buffer memory on the server to be allocated to clients for file system transactions, wherein the information indicates the client needs additional resources to perform a transaction, and the information received from the client includes a number of transactions that are currently pending on the client that exceed a maximum number of transactions available limit that was previously negotiated; **(Forecast. Column 3, Lines 14-20. "The allocation balancing routine… allocating or de-allocating an amount of resources…". Column 13, Line 15- Column 14, Line 30, "scheduler" and "admission control policy". Column 64, recited allocation code snippet)**

determining by the server component if allocating to the client the additional buffer memory on the server puts the server component in a resource constrained situation, wherein the server component is determined to be in a resource constrained situation by comparing a total number of transactions in use for all connections to the server and a total number of pending requests for all connections to the server with a maximum number of transactions available on the server; **(See Ballard below)**

in response to determining that allocating to the client the additional resources puts the server component in the resource constrained situation determining resources currently allocated to a plurality of existing clients; wherein

the server component stores server side information related to each client connection with each of the clients the server storing server side information for each connection, the server side information including a current number of outstanding transaction requests from the client; the maximum number of transactions available limit for the client; the number of transactions that are currently pending on the client that exceed the maximum number of transactions available limit for the client wherein the maximum number of transactions available limit for the client is initially determined when each of the clients connects to the server at which point a negotiation is performed between the client and the server to establish the maximum number of transactions; wherein the maximum number of transactions specifies a number of transaction requests to be accepted by the server from the client; **(Forecast. Column 3, Lines 14-20. "The allocation balancing routine… allocating or de-allocating an amount of resources…". Column 13, Line 15- Column 14, Line 30, "scheduler" and "admission control policy". Column 64, recited allocation code snippet)**

Forecast does not explicitly recite the client side load balancing aspect recited in the claim as wherein each of the clients maintains information about the state of its allocated resources and pending transactions including a current number of outstanding transaction requests and a maximum number of transactions available as well as manipulation of the maximum transaction available limit.

However Ballard discloses client side load balancing **(Ballard. Abstract, "Load balancing is achieved at the client side.")**

Ballard in Column 2, Lines 59-62 states **"According to another aspect of the invention, an additional method for load balancing is achieved by specifying a maximum frequency of requests (e.g., xx requests/minute) at which a server can be accessed."**

Forecast in view of Ballard does not explicitly disclose issuing rebalancing messages by a Light Weight Input/Output (LWIO) Protocol configured for distributed file systems to any affected clients to either reduce or increase their maximum transaction available limit, wherein the rebalancing messages to the affected clients comprise deltas, each delta specifying a change in the maximum number of transactions available to the corresponding affected client.

The light weight input/output protocol is defined in the specification in paragraph 21 as:

> [0021] Each client has a connection (e.g., connections **204**, **206**, **208**, respectively) to the server **201**. The clients and the server **201** may communicate using one of many different communication protocols. One communication protocol that may be used for distributed file systems is the Light Weight I/O (LWIO) protocol. The LWIO protocol enables an application operating on one computer (i.e., the client **203**) to communicate directly with a file system on the server **201** without necessarily involving kernel-mode resources on the client computer. Bypassing kernel-mode operations reduces the overhead associated with distributed file access, resulting in improved performance over other protocols, like TCP/IP. Clients can, however, have both user and kernel level components performing file I/O transactions on the server **201**.

The **Forecast** reference discusses in Column 10, Lines 9-19 utilizing various communication protocols but does not explicitly refer to a LWIO protocol.

However, the **Haugseth** reference discloses SAN/RDMA, which as per the definition of LWIO protocol in the specification, utilize bypass of kernel mode resources and allow for direct access. **(Haugseth. See Claim 1 as well as Column 2, Lines 35-60)**

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a LWIO protocol as defined in the specification and referred to in **Haugseth** as SAN/RDMA in order to allow for increased performance and reducing time for the resource allocation discussed in **Forecast in view of Ballard. (Haugseth. Column 1, Lines 40-50) (Forecast. Column 1, Lines 15-20. Performance Guarantees)**

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the client side load balancing of **Ballard** with the load balancing of **Forecast** in order to produce an **"alternative, more reliable, more flexible technique for achieving load balancing of client demand." (Ballard. Column 1, Lines 39-41)**

The Examiner notes that the citations of Ballard and the motivation statement provided applies to all other instances of client side load balancing further recited in the claims.

Regarding Claim 2:

The references disclose The computer-readable medium of claim 1, wherein the server component executes on a server in a network environment. **(Forecast. Column 1, Line 67, "file server")**

Regarding Claim 3:

The references disclose The computer-readable medium of claim 1, wherein the server component is further configured to allocate the client the additional resources needed if the server determines that such allocation does not create the resource constrained situation. **(Forecast. Column 17, Lines 1-10, "reasonable size for a disk read request")**

Regarding Claim 5:

The references disclose The computer-readable medium of claim 1, wherein wherein (Examiner note: The word wherein appears twice, apparently accidentally) each delta is based on a determination of a credit limit for the client scaled by a completion factor. **(Forecast. Column 3, Lines 14-20. "The allocation balancing routine… allocating or de-allocating an amount of resources…".)**

Regarding Claim 6:

The references disclose The computer-readable medium of claim 5, wherein the delta of each rebalancing message is restricted to one credit. **(Forecast. Column 3, Lines 14-20. "The allocation balancing routine… allocating or de-allocating an amount of resources…".)**

Regarding Claim 7:

The references disclose The computer-readable medium of claim 6, wherein the delta of each rebalancing message comprises a plurality of credits. **(Forecast. Column 3, Lines 14-20. "The allocation balancing routine… allocating or de-allocating an amount of resources…".)**

Regarding Claim 8:

The references disclose The computer-readable medium of claim 1, wherein the rebalance of the resources is performed based on an equitable distribution of the resources among the plurality of clients, wherein the equitable distribution allocated server buffer memory from an existing client to a new client if the existing client is not using the server buffer memory. **(Forecast. Column 13, Line 15- Column 14, Line 30, "scheduler" and "admission control policy".)**

Regarding Claim 9:

The references disclose The computer-readable medium of claim 8, wherein the equitable distribution of the resources is based on a number of clients connected to the server component. **(Forecast. Column 8, Lines 63-65, "to prevent the video file server from performing conflicting operations in response to concurrent requests from various network clients.")**

Regarding Claim 10:

The references disclose The computer-readable medium of claim 9, wherein at least one client connection is assigned a higher priority than connections of other clients. **(Forecast. Column 12, Line 29-40, "a weight and a scheduling flag is assigned to every real-time task.". Column 14, Lines 39, "weight assigned to real-time task")**

Regarding Claim 11:

The references disclose The computer-readable medium of claim 8, wherein the equitable distribution of the resources is based on a number of open files associated with each client connected to the server component. **(Forecast. Column 8, Lines 63-65, "to prevent the video file server from performing conflicting operations in response to concurrent requests from various network clients.")**

Regarding Claim 12:

The references disclose The computer-readable medium of claim 11, wherein at least one open file is assigned a higher priority than other open files. **(Forecast. Column 12, Line 29-40, "a weight and a scheduling flag is assigned to every real-time task.". Column 14, Lines 39, "weight assigned to real-time task")**

Regarding Claim 13:

The references disclose A computer program product embodied on a computer- readable storage medium and comprising code that, when executed, causes a computing device to perform the following

a plurality of data stores, each data store being associated with a different client connection to a server computing device, wherein the server computing device is configured for dynamic allocation of buffer memory on the server, each data store including: **(Forecast. Column 1, Line 67, file server)**

a credits used field that identifies a number of resource credits currently in use by a client computing device corresponding to the data store; **(Forecast. Column 2, Lines 52-65, resource allocation.)**

a credit limit field that identifies a number or resources available to the client corresponding to the data store; **(Forecast. Column 2, Lines 52-65, resource allocation.)**

a pending count field that identifies a number of transactions that are pending due to an unavailability of sufficient resources to handle the transactions; and **(Forecast. Column 3, Lines 14-20, "imbalance condition")**

an open files field that identifies a number of files that are currently in use by the client; **(Forecast. Column 63, Lines 15-20. Opening files and allocation of needed resources)**

receiving a transaction request message on the server computing device from the client; wherein the transaction request message received from the client includes the number of transactions that are pending due to an unavailability of sufficient resources to handle the transactions that was previously negotiated; wherein the number of resources available to the client that are stored in the credit limit field is a maximum number of transactions available to the client that is initially determined when the client connects to the server at which point a negotiation is performed between the client and the server to establish the maximum number of transactions; and wherein the server rebalances resources when the transaction request places the server in a resource constrained situation;

Forecast does not explicitly recite the client side load balancing aspect recited in the claim as wherein the server receives a transaction request message from the client; and wherein the server rebalances resource when the transaction request places the server in a resource constrained situation.

However Ballard discloses client side load balancing **(Ballard. Abstract, "Load balancing is achieved at the client side.")**

Ballard in Column 2, Lines 59-62 states **"According to another aspect of the invention, an additional method for load balancing is achieved by specifying a maximum frequency of requests (e.g., xx requests/minute) at which a server can be accessed."**

Forecast in view of Ballard does not explicitly disclose sending rebalancing messages by a Light Weight Input/Output (LWIO) Protocol used for distributed file systems to any affected clients to either reduce or increase their maximum transaction available limit.

The light weight input/output protocol is defined in the specification in paragraph 21 as:

> [0021] Each client has a connection (e.g., connections **204**, **206**, **208**, respectively) to the server **201**. The clients and the server **201** may communicate using one of many different communication protocols. One communication protocol that may be used for distributed file systems is the Light Weight I/O (LWIO) protocol. The LWIO protocol enables an application operating on one computer (i.e., the client **203**) to communicate directly with a file system on the server **201** without necessarily involving kernel-mode resources on the client computer. Bypassing kernel-mode operations reduces the overhead associated with distributed file access, resulting in improved performance over other protocols, like TCP/IP. Clients can, however, have both user and kernel level components performing file I/O transactions on the server **201**.

The **Forecast** reference discusses in Column 10, Lines 9-19 utilizing various communication protocols but does not explicitly refer to a LWIO protocol.

However, the **Haugseth** reference discloses SAN/RDMA, which as per the definition of LWIO protocol in the specification, utilize bypass of kernel mode resources and allow for direct access. **(Haugseth. See Claim 1 as well as Column 2, Lines 35-60)**

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a LWIO protocol as defined in the specification and referred to in **Haugseth** as SAN/RDMA in order to allow for increased performance and reducing time for the resource allocation discussed in **Forecast in view of Ballard. (Haugseth. Column 1, Lines 40-50) (Forecast. Column 1, Lines 15-20. Performance Guarantees)**

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the client side load balancing of **Ballard** with the load balancing of **Forecast** in order to produce an **"alternative, more reliable, more flexible technique for achieving load balancing of client demand." (Ballard. Column 1, Lines 39-41)**

The Examiner notes that the citations of Ballard and the motivation statement provided applies to all other instances of client side load balancing further recited in the claims. See Section 2.iii above.

Regarding Claim 14:

The references disclose The computer-readable medium of claim 13, wherein the data store further comprises a flag field that identifies whether the corresponding client has acknowledged a resource-related message. **(Forecast. Column 12, Line 29-40, "a scheduling flag is assigned to every real-time task.")**

Regarding Claim 15:

The references disclose The computer-readable medium of claim 13, wherein a value of the pending count field is provided by the client in connection with a transaction request message. **(Forecast. Column 2, Lines 52-65, data stream access and allocation with balancing of resources)**

Regarding Claim 16:

The references disclose The computer-readable medium of claim 15, wherein a value of the credit limit field is modified based on the value of the pending count field. **(Forecast. Column 2, Lines 52-65, data stream access and allocation with balancing of resources)**

Regarding Claim 17:

The references disclose The computer-readable medium of claim 13, wherein values for the credit limit fields of the plurality of data stores is rebalanced based on an equitable distribution of available resources. **(Forecast. Column 8, Lines 63-65, "to prevent the video file server from performing conflicting operations in response to concurrent requests from various network clients.")**

Regarding Claim 18:

See rejection for claims 1 and 13.

Regarding Claim 19:

See rejection for claims 1 and 13.

Regarding Claim 20:

The references disclose The computer-implemented method of claim 19, wherein the reallocation is based on each client connection receiving a pro rata share of the total available resources. **(Forecast. Column 12, Lines 57-Column 13, Line 6, "priority." Column 15-16 discuss constraint conditions and priority which reads on "pro rata".)**

Regarding Claim 21:

The references disclose The computer-implemented method of claim 20, wherein the pro rata share of the total available resources is based on the total available resources divided among the total number of client connections. **(Forecast. Column 12, Lines 57-Column 13, Line 6, "priority." Column 15-16 discuss constraint conditions and priority which reads on "pro rata".)**

Regarding Claim 22:

Forecast does not explicitly recite The computer-implemented method of claim 21, wherein the total available resources are divided evenly among the total number of client connections.

However Ballard discloses even distribution. **(Ballard. Column 5, lines 36-38, "equal division". Figure 4A)**

Forecast and Ballard are analogous art in the field of resource allocation.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the even load balancing of **Ballard** with the load balancing of **Forecast** in order to produce an **"alternative, more reliable, more flexible technique for achieving load balancing of client demand." (Ballard. Column 1, Lines 39-41)**

The Examiner notes that the citations of Ballard and the motivation statement provided applies to all other instances of client side load balancing further recited in the claims.

Regarding Claim 23:

The references disclose The computer-implemented method of claim 21, wherein at least one of the client connections is weighted more heavily than another of the client connections. **(Forecast. Column 12, Lines 3-11, weighted scheme. Column 12, Line 29-40, "a weight and a scheduling flag is assigned to every real-time task.". Column 14, Lines 39, "weight assigned to real-time task")**

Regarding Claim 24:

The references disclose The computer-implemented method of claim 20, wherein the pro rata share for a particular client is based on a proportion of a total number of open files to a number of open files for the particular client. **(Forecast. Column 63, Lines 15-20. Opening files and allocation of needed resources)**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claim(s) 4 is** rejected under 35 U.S.C. 103(a) as being unpatentable over **Forecast** in view of **Ballard** further in view of **in view of Haugseth et al. "Computer Network Controller", U.S. Patent No. 6,856,619, hereafter referred to as Haugseth.**

Regarding Claim 4:

Forecast in view of Ballard does not explicitly disclose The computer-readable medium of claim 1, wherein the clients and the server component communicate using a light weight input/output protocol.

The light weight input/output protocol is defined in the specification in paragraph 21 as:

> [0021] Each client has a connection (e.g., connections **204**, **206**, **208**, respectively) to the server **201**. The clients and the server **201** may communicate using one of many different communication protocols. One communication protocol that may be used for distributed file systems is the Light Weight I/O (LWIO) protocol. The LWIO protocol enables an application operating on one computer (i.e., the client **203**) to communicate directly with a file system on the server **201** without necessarily involving kernel-mode resources on the client computer. Bypassing kernel-mode operations reduces the overhead associated with distributed file access, resulting in improved performance over other protocols, like TCP/IP. Clients can, however, have both user and kernel level components performing file I/O transactions on the server **201**.

The **Forecast** reference discusses in Column 10, Lines 9-19 utilizing various communication protocols but does not explicitly refer to a LWIO protocol.

However, the **Haugseth** reference discloses SAN/RDMA, which as per the definition of LWIO protocol in the specification, utilize bypass of kernel mode resources and allow for direct access. **(Haugseth. See Claim 1 as well as Column 2, Lines 35-60)**

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a LWIO protocol as defined in the specification and referred to in **Haugseth** as SAN/RDMA in order to allow for increased performance and reducing time for the resource allocation discussed in **Forecast in view of Ballard. (Haugseth. Column 1, Lines 40-50) (Forecast. Column 1, Lines 15-20. Performance Guarantees)**

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee

pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. All Claims are rejected.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIF A. ALHIJA whose telephone number is (571)272-8635. The examiner can normally be reached on M-F, 11:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-22792279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

July 31, 2009

/Hugh Jones/
Primary Examiner, Art Unit 2128